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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte FRANCOIS KERMAREC, MARC LAMBERTON,
MICHAEL TATE, and ERIC MOUQUE

Appeal 2009-007169
Application 10/054,207
Technology Center 2400

Before LANCE LEONARD BARRY, ST. JOHN COURTENAY III, and
CAROLYN D. THOMAS, *Administrative Patent Judges*.

BARRY, *Administrative Patent Judge*.

DECISION ON APPEAL ¹

¹ The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or for filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the "MAIL DATE" (paper delivery mode) or the "NOTIFICATION DATE" (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

STATEMENT OF THE CASE

The Patent Examiner rejected claims 20-27, 30-33, and 49-58. The Appellants appeal therefrom under 35 U.S.C. § 134(a). We have jurisdiction under 35 U.S.C. § 6(b).

INVENTION

The Appellants describe the invention at issue on appeal as follows.

A virtual private network (VPN) service is provided through a shared network infrastructure comprising interconnected provider edge (PE) devices having customer edge (CE) interfaces. Some of the CE interfaces are allocated to a VPN supporting virtual LANs (VLANs). A correspondence between a CE interface and a virtual LAN is learnt on the basis of tagged frames received at this CE interface and including an identifier of this virtual LAN. The learning process permits the detection of pairs of CE interfaces which correspond to a common virtual LAN. Upon such detection, a virtual circuit is established in the shared network infrastructure between the PE devices having these CE interfaces, and subsequently used for forwarding frames including the identifier of the common virtual VLAN.

(Abstract.)

ILLUSTRATIVE CLAIM

20. A method of providing a virtual private network (VPN) service through a shared network infrastructure comprising a plurality of interconnected provider edge (PE) devices having customer edge (CE) interfaces, wherein some of the CE interfaces are allocated to a VPN supporting a plurality of virtual local area networks (VLANs) and are arranged for exchanging tagged data frames with CE devices respectively connected to the PE devices through said CE interfaces, each

tagged frame including a VLAN identifier, the method comprising the following steps:

- receiving at least one tagged frame from a CE device at each CE interface allocated to said VPN, and learning a correspondence between said CE interface and each VLAN identifier included in said at least one tagged frame;
- detecting whether a pair of CE interfaces allocated to said VPN and belonging to two PE devices correspond to a common VLAN identifier; and
- in response to such detection, establishing at least one virtual circuit in the shared network infrastructure between said two PE devices, for forwarding frames including said common VLAN identifier.

REJECTIONS

Claims 20-25, 30, 31 and 49-54 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. 6,765,914 B1 ("Jain"); U.S. 6,701,375 B1 ("Walker"); and U.S. 2002/0124107 A1 ("Goodwin").

Claims 26, 27, 32, 33 and 55-58 stand rejected under § 103(a) as being unpatentable over Jain; Walker; Goodwin; and U.S. 6,944,159 B1 ("Fotedar").

CLAIM GROUPING

Based on the Appellants' arguments, we will decide the appeal of claims 20-27, 30-33, and 49-58 based on claim 20 alone. *See* 37 C.F.R. § 41.37(c)(1)(vii).

ISSUES

The issues before us are whether the Examiner erred in finding that the combined teachings of Jain, Walker, and Goodwin would have suggested (1) "learning a correspondence between said CE interface and each VLAN identifier included in said at least one tagged frame"; (2) "detecting whether a pair of CE interfaces allocated to said VPN and belonging to two PE devices correspond to a common VLAN identifier"; and (3) "in response to such detection, establishing at least one virtual circuit in the shared network infrastructure between said two PE devices, for forwarding frames including said common VLAN identifier," as recited in claim 20.

FINDINGS OF FACT

Jain "configur[es] subnets within a switch network that is typically comprised of switches and a router coupled together via a common shared bus." (Jain, Abstract, ll. 2-4.) "In one embodiment, a VLAN-defined (virtual local area network-defined) subnet is configured by mapping a subnet to a VLAN. All subnet members share a single VLAN ID irrespective of device boundaries of the switch network." (*Id.* at ll. 4-8.)

Walker "comprises the steps of: using an auxiliary communication channel to establish switched virtual circuit between a first router associated with a first host and a second router associated with a second host; transmitting data packets in both directions over the switched virtual circuit . . ." (Walker, col. 2, ll. 55-60.)

Goodwin teaches that "VLAN membership may be detected by a function within the switch called source learning (e.g., L2 source learning). The source learning function may apply the VLAN policies during

processing of all unknown unicast, broadcast, and multicast frames." (Goodwin 1, ¶ 0015.) The same reference further teaches that "[e]ach switch . . . may maintain a source learning related database, which is built up by the configured source learning policies and observed traffic." (*Id.* at 2, ¶ 0026.)

ANALYSIS

We address the three issues *seriatim*.

FIRST ISSUE

"It is not the function of [the U.S. Court of Appeals for the Federal Circuit] to examine the claims in greater detail than argued by an appellant, looking for nonobvious distinctions over the prior art." *In re Baxter Travenol Labs.*, 952 F.2d 388, 391 (Fed. Cir. 1991). "Similarly, it is not the function of this Board to examine claims in greater detail than argued by an appellant, looking for distinctions over the prior art." *Ex Parte Shen*, No. 2008-0418, 2008 WL 4105791 at * 9 (BPAI, Sept. 04, 2008).

Here, the Examiner makes the following findings.

Appellant's attention is directed to ¶s 15, 17 and 26 which states that VLAN membership can be learned within the switch using a function called "source learning" which apply to VLAN policies during processing of all unknown frames. The router maintains a "source learning" related database. This information stored is found out source learning policies and observed traffic. VAP can then take information learned from this functionality and then distribute it to the other switches. In this way VAP is considered a separate function than the source learning. One of ordinary skill in the art [would have understood that] [s]ource learning learns the VLAN information from all unknown packets, not just packets originating from WAN side of the switch, rather would learn the correspondences from the LAN side as well (i.e. switch 1 102 would learn the VLAN correspondences from endstations 108-

112 using the "source learning" function of the switch. This clearly demonstrates that Goodwin learns the correspondences between CE devices and VLANs

(Ans. 11-12.) Paragraphs 15 and 26 of Goodwin, which are reproduced in pertinent part in the Findings of Fact section, *supra*, support the Examiner's findings.

For their part, the Appellants do not address the Examiner's reliance on paragraphs 15 and 26 of the reference. Instead, they merely allege that "no learning of VLAN membership of an endstation to its connecting switch is disclosed or suggested by Goodwin." (App. Br. 6.)

Their allegation does not persuade us of error in the Examiner's findings. Therefore, we *conclude* that the Examiner did not err in finding that the combined teachings of Jain, Walker, and Goodwin would have suggested "learning a correspondence between said CE interface and each VLAN identifier included in said at least one tagged frame" as recited in claim 20.

SECOND ISSUE

The Examiner makes the following findings.

[Jain's] Figure 7 and col. 5, line 31 to col. 6, line 27 teach forwarding a packet through a plurality of switches. Jain teaches receiving a packet corresponding to a VLAN ID. The system will then search through the MAC addresses associated with that VLAN in order to find the appropriate destination identified in the VLAN ID tagged packet (i.e. the VLAN has a list of MAC addresses it knows is associated with the VLAN, and will then search through this list to see if the MAC address in the received packet corresponds to any of the MAC addresses it knows are part of the VLAN; thereby determining that both

the source address and destination addresses correspond to the same VLAN).

(Ans. 9-10.)

For its part, the Jain reference's "FIG. 7 is a flow chart outlining the steps for intra-subnet packet forwarding" (Jain, col. 2, ll. 56-57.) The description of this flow chart follows in pertinent part.

In step 703, upon the arrival of a packet at a switch's local switch port wherein the packet has a VLAN ID, the switch searches within its list of MAC addresses associated with identified VLAN. Specifically, the switch searches within the list for a MAC address that matches a destination MAC address carried by the VLAN ID tagged packet.

(Jain, col. 5, ll. 43-48.) This description support the Examiner's findings.

For their part, the Appellants do not address the Examiner's reliance on step 703 of the flow chart. Instead, they argue about "steps 710, 730, 735, 740 and 750." (App. Br. 5.)

Their argument about different steps of the flow chart, however, does not persuade us of error in the Examiner's findings. Therefore, we *conclude* that the Examiner did not err in finding that the combined teachings of Jain, Walker, and Goodwin would have suggested "detecting whether a pair of CE interfaces allocated to said VPN and belonging to two PE devices correspond to a common VLAN identifier" as recited in claim 20.

THIRD ISSUE

"The test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art." *In re Young*, 927 F.2d 588, 591 (Fed. Cir. 1991) (citing *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)). "Non-obviousness cannot be established by

attacking references individually where the rejection is based upon the teachings of a combination of references." *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (citing *Keller*, 642 F.2d at 425). In determining obviousness, furthermore, a reference "must be read, not in isolation, but for what it fairly teaches in combination with the prior art as a whole." *Id.*

Here, the Examiner makes the following findings and conclusions.

It would have been obvious to one of ordinary skill in the art to combine the teaching of Jain's packet distribution system with Walker's establishment of a virtual circuit in response to not knowing the destination address in order to conserve bandwidth, which was discussed as a problem in Jain and solved by Walker. This combination would facilitate bandwidth conservation by permitting VLAN members the ability to create virtual circuits if they are not established to transfer packets between one another. One of ordinary skill in the art would clearly have the ability to utilize the VLAN MAC address list of Jain and the virtual circuit establishment/ sending subsequent packets over the same virtual circuit as described in Walker in order to meet the claimed limitations. By this rationale, Jain-Walker *together* clearly demonstrate the determination steps and the establishment step

(Ans. 11.)

The Appellants argue that Walker does not disclose "establishing a virtual circuit in a shared network infrastructure, for forwarding frames including said common VLAN identifier" (App. Br. 5) "because the virtual circuit of Walker is not meant to forward frames including a common VLAN identifier (no VLAN identifier being used in Walker)." (*Id.*)

As explained regarding the second issue, the Examiner relies on Jain to teach forwarding VLAN ID tagged packets in response to the aforementioned detection step. He relies on Walker to teach "establish[ing] an emulated switched virtual circuit (SVC) between host 18A and host 18B"

(Walker, col. 6, ll. 37-39) to transmit data packets. (*Id.* at ll. 50-51.) We are persuaded that the combined teachings of the references would have suggested in response to the aforementioned detection, establishing at least one virtual circuit in the shared network infrastructure between said two PE devices, for forwarding frames including said common VLAN identifier.

We agree with the Examiner that the Appellants are "arguing the references separately, when it is the combination of Jain in view of Walker [that would have suggested] the claimed limitations." (Final Rej. 8.) Such arguments cannot establish non-obviousness. Therefore, we *conclude* that the Examiner did not err in finding that the combined teachings of Jain, Walker, and Goodwin would have suggested "in response to such detection, establishing at least one virtual circuit in the shared network infrastructure between said two PE devices, for forwarding frames including said common VLAN identifier" as recited in claim 20.

DECISION

We affirm the rejections of claims 20-27, 30-33, and 49-58. No time for taking any action connected with this appeal may be extended under 37 C.F.R. § 1.136(a)(1). *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED

Appeal 2009-007169
Application 10/054,207

llw

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